

CLAIMS

The invention claimed is:

1. A device for use in cleaning the air intake system of an engine comprising:
a controller connected with the air intake system for dropping pressures in said air intake system;
a source of cleaner with means to introduce said cleaner into said air intake system and may be induced into said air intake system by the pressure drop created by the controller.
2. The device of claim 1 in which said controller further comprises:
at least one aperture sizeable to create an appropriate reduction in pressure in said air intake system.
3. The device of claim 2 in which said controller further comprises:
a vessel connected to a mouth of the air intake system;
said vessel having a chamber defined therein; and
said chamber being substantially air-tight, except for said at least one aperture.
4. The device of claim 3 wherein said at least one sizeable aperture comprises:
a first member defined by said vessel having a first hole therein; and
a second member attached to said vessel having a second hole therein;

said first and second members being slideable, one on top of the other such that the first hole may be slid so as to be partially offset relative to said second hole to size said at least one aperture.

5. The device of claim 4 wherein each of said first and second holes are substantially elliptical.

6. The device of claim 4 wherein said second member is rotatable on said first member.

7. The device of claim 6 wherein rotation of said second member on said first member is limited between two extreme positions by a pin on one of said first and second members and a slot on the other of said first and second members.

8. The device of claim 6 wherein an indicator is provided for use in informing the user of the angular position of said second member relative to said first member, said indicator comprising:

a mark on the periphery of one of said first and second members and a scale on the other of said first and second members.

9. The device of claim 4 wherein when said first and second holes are offset, a swirling effect is caused in said chamber.

10. The device of claim 3 wherein said means to introduce said cleaner comprises:

a container for holding said cleaner;

a conduit with first and second ends said first end fluidly connected to said container; and

a nozzle on said second end of said conduit incorporated into a portion of said vessel for introducing the cleaner into the chamber.

11. A method of cleaning the air intake system of an engine, said engine having an air intake system, said system having a duct, said duct having a mouth, and an EGR valve removeably connected to said mouth of said air intake duct, said method comprising the steps of:

removing the EGR valve;

providing a cleaner source;

suctioning said cleaner from said source into said air intake system by lowering the pressure in the air intake duct to lower levels than occur with the engine under normal operating conditions.

12. The method of claim 11 wherein said lowering of pressure step further comprises:

providing a vacuum control vessel;

attaching said vessel to the mouth in place of said EGR valve;

providing at least one sizeable aperture on said vessel; and

manipulating the size of said at least one sizeable aperture to lower the pressure within said vessel to a level which creates a desired amount of suction.

13. The method of claim 11, including the additional steps of:

providing an auger; and

augering out the inside surfaces of said duct proximate the mouth of the duct after said removing step and before said suctioning step for the purpose of removing contaminants.

14. The method of claim 11, wherein said step of providing said cleaner source comprises the steps of:

introducing a highly-polar first solvent; and

mixing the highly-polar first solvent with a second solvent of low polarity.

15. A cleaner for use in cleaning at least one engine system of a diesel engine, said cleaner comprising:

a first component which is a highly-polar solvent for cleaning high end hydrocarbons; and

a second component which is a solvent having low polarity for cleaning low-end hydrocarbons.

16. The cleaner of claim 15 comprising:

a third component which is a surfactant.

17. A cleaner for use in cleaning at least one engine system of a diesel engine, said cleaner comprising:

a highly polar solvent, said solvent being reasonably accepted by said diesel engine during the combustion process.

18. The cleaner of claim 17 in which said solvent comprises:

propylene carbonate.

19. The cleaner of claim 17 comprising:
a solvent having low polarity for cleaning low-end hydrocarbons.
20. The cleaner of claim 19 wherein said solvent having low polarity is an aeromatic solvent.
21. The cleaner of claim 20 wherein said aeromatic solvent is one of toluenes, zylenes, and cumenes or any combination thereof.
22. The cleaner of claim 17, wherein said highly polar solvent is one of ethylene carbonate, butylene carbonate, propylene carbonate or any combination thereof.
23. An auger used to clean the inside surface of the air-intake duct of an engine, said duct having a mouth, a portion of said duct proximate said mouth having a substantially cylindrical inside surface, comprising:
a longitudinal member supporting a helical flighting, said flighting having an outside diameter infinitesimally smaller than the inside diameter of said portion.